

SEQUENCE LISTING



<110> Nolan, Garry P

<120> METHODS FOR SCREENING FOR TRANSDOMINANT INTRA-CELLULAR
EFFECTOR PEPTIDES AND RNA MOLECULES

<130> A-64260-2/DJB/RMS/DR

<140> 08/963,368

<141> 1997-03-11

<150> 08/589,108

<151> 1996-01-23

<150> 08/589,911

<151> 1996-01-23

<150> 08/789,333

<151> 1997-01-23

<160> 102

<170> PatentIn Ver. 2.0

<210> 1

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>

<221> misc_feature

<222> (7)..(35)

<223> The n(s) at positions

7,8,10,11,13,14,16,17,19,20,22,23,25,26,28,29,31,3
2,34,35 can be any nucleic acid.

<400> 1

atgggannkn nknknknkn knknknknkn nnknknkggg ggcccccc

48

<210> 2

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>

<221> VARIANT

<222> (3)..(12)

<223> The Xaa(s) at positions 3-12 can be any amino
acid.

<400> 2

Met Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gly Gly Pro Pro
1 5 10 15

<210> 3

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: molecular
flexibility/stability sequence.

<400> 3

Gly Gly Pro Pro
1

<210> 4

<211> 61

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: coiled-coil
structure.

<400> 4

Met Gly Cys Ala Ala Leu Glu Ser Glu Val Ser Ala Leu Glu Ser Glu
1 5 10 15

Val Ala Ser Leu Glu Ser Glu Val Ala Ala Leu Gly Arg Gly Asp Met
20 25 30

Pro Leu Ala Ala Val Lys Ser Lys Leu Ser Ala Val Lys Ser Lys Leu
35 40 45

Ala Ser Val Lys Ser Lys Leu Ala Ala Cys Gly Pro Pro
50 55 60

<210> 5
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: loop
structure.

<400> 5
Gly Arg Gly Asp Met Pro
1 5

<210> 6
<211> 69
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: minibody
presentation structure.

<400> 6
Met Gly Arg Asn Ser Gln Ala Thr Ser Gly Phe Thr Phe Ser His Phe
1 5 10 15

Tyr Met Glu Trp Val Arg Gly Gly Glu Tyr Ile Ala Ala Ser Arg His
20 25 30

Lys His Asn Lys Tyr Thr Thr Glu Tyr Ser Ala Ser Val Lys Gly Arg
35 40 45

Tyr Ile Val Ser Arg Asp Thr Ser Gln Ser Ile Leu Tyr Leu Gln Lys
50 55 60

Lys Lys Gly Pro Pro
65

<210> 7
<211> 7
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nuclear
localization sequence.

<400> 7

Pro Lys Lys Lys Arg Lys Val
1 5

<210> 8

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nuclear
localization sequence.

<400> 8

Ala Arg Arg Arg Arg Pro
1 5

<210> 9

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nuclear
localization sequence.

<400> 9

Glu Glu Val Gln Arg Lys Arg Gln Lys Leu
1 5 10

<210> 10

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nuclear
localization sequence.

<400> 10

Glu Glu Lys Arg Lys Arg Thr Tyr Glu

1

5

<210> 11

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nuclear
localization sequence.

<400> 11

Ala Val Lys Arg Pro Ala Ala Thr Lys Lys Ala Gly Gln Ala Lys Lys

1

5

10

15

Lys Lys Leu Asp

20

<210> 12

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: signal
sequence.

<400> 12

Met Ala Ser Pro Leu Thr Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu

1

5

10

15

Gly Glu Ser Ile Leu Gly Ser Gly Glu Ala Lys Pro Gln Ala Pro

20

25

30

<210> 13

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: signal
sequence.

<400> 13

Met Ser Ser Phe Gly Tyr Arg Thr Leu Thr Val Ala Leu Phe Thr Leu
1 5 10 15

Ile Cys Cys Pro Gly
20

<210> 14

<211> 51

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: transmembrane
domain sequence.

<400> 14

Pro Gln Arg Pro Glu Asp Cys Arg Pro Arg Gly Ser Val Lys Gly Thr
1 5 10 15

Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly
20 25 30

Ile Cys Val Ala Leu Leu Leu Ser Leu Ile Ile Thr Leu Ile Cys Tyr
35 40 45

His Ser Arg
50

<210> 15

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: transmembrane
sequence.

<400> 15

Met Val Ile Ile Val Thr Val Val Ser Val Leu Leu Ser Leu Phe Val
1 5 10 15

Thr Ser Val Leu Leu Cys Phe Ile Phe Gly Gln His Leu Arg Gln Gln
20 25 30

Arg

<210> 16
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: membrane
anchor sequence.

<400> 16
Pro Asn Lys Gly Ser Gly Thr Thr Ser Gly Thr Thr Arg Leu Leu Ser
1 5 10 15

Gly His Thr Cys Phe Thr Leu Thr Gly Leu Leu Gly Thr Leu Val Thr
20 25 30

Met Gly Leu Leu Thr
35

<210> 17
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:myristylation
sequence.

<400> 17
Met Gly Ser Ser Lys Ser Lys Pro Lys Asp Pro Ser Gln Arg
1 5 10

<210> 18
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: palmitoylation
sequence.

<400> 18
Leu Leu Gln Arg Leu Phe Ser Arg Gln Asp Cys Cys Gly Asn Cys Ser

1	5	10	15
Asp Ser Glu Glu Glu Leu Pro Thr Arg Leu			
	20	25	

<210> 19
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: palmitoylation
 sequence.

<400> 19			
Lys Gln Phe Arg Asn Cys Met Leu Thr Ser Leu Cys Cys Gly Lys Asn			
1	5	10	15

Pro Leu Gly Asp
 20

<210> 20
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: palmitoylation
 sequence.

<400> 20			
Leu Asn Pro Pro Asp Glu Ser Gly Pro Gly Cys Met Ser Cys Lys Cys			
1	5	10	15

Val Leu Ser

<210> 21
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: lysosomal
 degradation sequence.

<400> 21

Lys Phe Glu Arg Gln

1 5

<210> 22

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: lysosomal
membrane sequence.

<400> 22

Met Leu Ile Pro Ile Ala Gly Phe Phe Ala Leu Ala Gly Leu Val Leu

1 5 10 15

Ile Val Leu Ile Ala Tyr Leu Ile Gly Arg Lys Arg Ser His Ala Gly

20 25 30

Tyr Gln Thr Ile

35

<210> 23

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: lysosomal
degradation sequence.

<400> 23

Leu Val Pro Ile Ala Val Gly Ala Ala Leu Ala Gly Val Leu Ile Leu

1 5 10 15

Val Leu Leu Ala Tyr Phe Ile Gly Leu Lys His His His Ala Gly Tyr

20 25 30

Glu Gln Phe

35

<210> 24

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mitochondrial
matrix sequence.

<400> 24

Met Leu Arg Thr Ser Ser Leu Phe Thr Arg Arg Val Gln Pro Ser Leu
1 5 10 15

Phe Ser Arg Asn Ile Leu Arg Leu Gln Ser Thr
20 25

<210> 25

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mitochondrial
inner membrane sequence.

<400> 25

Met Leu Ser Leu Arg Gln Ser Ile Arg Phe Phe Lys Pro Ala Thr Arg
1 5 10 15

Thr Leu Cys Ser Ser Arg Tyr Leu Leu
20 25

<210> 26

<211> 64

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mitochondrial
intermembrane sequence.

<400> 26

Met Phe Ser Met Leu Ser Lys Arg Trp Ala Gln Arg Thr Leu Ser Lys
1 5 10 15

Ser Phe Tyr Ser Thr Ala Thr Gly Ala Ala Ser Lys Ser Gly Lys Leu
20 25 30

Thr Gln Lys Leu Val Thr Ala Gly Val Ala Ala Ala Gly Ile Thr Ala
 35 40 45

Ser Thr Leu Leu Tyr Ala Asp Ser Leu Thr Ala Glu Ala Met Thr Ala
 50 55 60

<210> 27

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mitochondrial
 outer membrane sequence.

<400> 27

Met Lys Ser Phe Ile Thr Arg Asn Lys Thr Ala Ile Leu Ala Thr Val
 1 5 10 15

Ala Ala Thr Gly Thr Ala Ile Gly Ala Tyr Tyr Tyr Tyr Asn Gln Leu
 20 25 30

Gln Gln Gln Gln Gln Arg Gly Lys Lys
 35 40

<210> 28

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: endoplasmic
 reticulum sequence.

<400> 28

Lys Asp Glu Leu
 1

<210> 29

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: endoplasmic
reticulum sequence.

<400> 29

Leu Tyr Leu Ser Arg Arg Ser Phe Ile Asp Glu Lys Lys Met Pro
1 5 10 15

<210> 30

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:farnesylation
sequence.

<400> 30

Leu Asn Pro Pro Asp Glu Ser Gly Pro Gly Cys Met Ser Cys Lys Cys
1 5 10 15

Val Leu Ser

<210> 31

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
geranylgeranylation sequence.

<400> 31

Leu Thr Glu Pro Thr Gln Pro Thr Arg Asn Gln Cys Cys Ser Asn
1 5 10 15

<210> 32

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:destruction

sequence.

<400> 32

Arg Thr Ala Leu Gly Asp Ile Gly Asn

1

5

<210> 33

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:secretory
sequence.

<400> 33

Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ser Leu Ala Leu

1

5

10

15

Val Thr Asn Ser

20

<210> 34

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: secretory
sequence.

<400> 34

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu

1

5

10

15

Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr

20

25

<210> 35

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: secretory

sequence.

<400> 35

Met Ala Leu Trp Met Arg Leu Leu Pro Leu Leu Ala Leu Leu Ala Leu
1 5 10 15

Trp Gly Pro Asp Pro Ala Ala Ala Phe Val Asn
20 25

<210> 36

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: secretory
sequence.

<400> 36

Met Lys Ala Lys Leu Leu Val Leu Leu Tyr Ala Phe Val Ala Gly Asp
1 5 10 15

Gln Ile

<210> 37

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: secretory
sequence.

<400> 37

Met Gly Leu Thr Ser Gln Leu Leu Pro Pro Leu Phe Phe Leu Leu Ala
1 5 10 15

Cys Ala Gly Asn Phe Val His Gly
20

<210> 38

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: stability
sequence.

<220>

<221> VARIANT

<222> (3)..(6)

<223> The Xaa(s) at positions 3-6 can be any amino acid.

<400> 38

Met Gly Xaa Xaa Xaa Xaa Gly Gly Pro Pro

1 5 10

<210> 39

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker
sequence.

<400> 39

Gly Ser Gly Gly Ser

1 5

<210> 40

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker
sequence.

<400> 40

Gly Gly Gly Ser

1

<210> 41

<211> 124

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> VARIANT

<222> (115)..(120)

<223> The Xaa(s) at postions 115-120 can be any amino acid.

<400> 41

Met Arg Pro Leu Ala Gly Gly Glu His Thr Met Ala Ser Pro Leu Thr
1 5 10 15

Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu Gly Glu Ser Ile Ile Leu
20 25 30

Gly Ser Gly Pro Gln Arg Pro Glu Asp Cys Arg Pro Arg Gly Ser Val
35 40 45

Lys Gly Thr Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro
50 55 60

Leu Ala Gly Ile Cys Val Ala Leu Leu Leu Ser Leu Ile Ile Thr Leu
65 70 75 80

Ile Cys Tyr His Ser Arg Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
85 90 95

Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly
100 105 110

Gly Gly Xaa Xaa Xaa Xaa Xaa Gly Gly Pro Pro
115 120

<210> 42

<211> 173

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic.

<220>

<221> VARIANT

<222> (140)..(145)

<223> The Xaa(s) at positions 140-145 can be any amino acid.

<400> 42

Met	Arg	Pro	Leu	Ala	Gly	Gly	Glu	His	Thr	Met	Ala	Ser	Pro	Leu	Thr
1				5					10					15	
Arg	Phe	Leu	Ser	Leu	Asn	Leu	Leu	Leu	Gly	Glu	Ser	Ile	Ile	Leu	
			20				25					30			
Gly	Ser	Gly	Pro	Gln	Arg	Pro	Glu	Asp	Cys	Arg	Pro	Arg	Gly	Ser	Val
		35					40					45			
Lys	Gly	Thr	Gly	Leu	Asp	Phe	Ala	Cys	Asp	Ile	Tyr	Ile	Trp	Ala	Pro
	50					55					60				
Leu	Ala	Gly	Ile	Cys	Val	Ala	Leu	Leu	Leu	Ser	Leu	Ile	Ile	Thr	Leu
65					70					75					80
Ile	Cys	Tyr	His	Ser	Arg	Gly	Ser	Gly	Gly	Ser	Gly	Ser	Gly	Gly	Ser
				85				90						95	
Gly	Ser	Gly	Gly	Ser	Gly	Ser	Gly	Gly	Ser	Gly	Ser	Gly	Gly	Ser	Gly
			100					105					110		
Gly	Gly	Cys	Ala	Ala	Leu	Glu	Ser	Glu	Val	Ser	Ala	Leu	Glu	Ser	Glu
		115					120					125			
Val	Ala	Ser	Leu	Glu	Ser	Glu	Val	Ala	Ala	Leu	Xaa	Xaa	Xaa	Xaa	Xaa
		130					135				140				
Xaa	Leu	Ala	Ala	Val	Lys	Ser	Lys	Leu	Ser	Ala	Val	Lys	Ser	Lys	Leu
145					150					155				160	
Ala	Ser	Val	Lys	Ser	Lys	Leu	Ala	Ala	Cys	Gly	Pro	Pro			
				165						170					

<210> 43

<211> 127

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic.

<220>

<221> VARIANT

<222> (38)..(43)

<223> The Xaa(s) at positions 38-43 can be any amino

acid.

<400> 43

Met Arg Pro Leu Ala Gly Gly Glu His Thr Met Ala Ser Pro Leu Thr
1 5 10 15

Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu Gly Glu Ser Ile Ile Leu
20 25 30

Gly Ser Gly Gly Gly Xaa Xaa Xaa Xaa Xaa Xaa Gly Gly Ser Gly Gly
35 40 45

Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
50 55 60

Gly Ser Gly Gly Ser Gly Gly Gly Pro Gln Arg Pro Glu Asp Cys Arg
65 70 75 80

Pro Arg Gly Ser Val Lys Gly Thr Gly Leu Asp Phe Ala Cys Asp Ile
85 90 95

Tyr Ile Trp Ala Pro Leu Ala Gly Ile Cys Val Ala Leu Leu Leu Ser
100 105 110

Leu Ile Ile Thr Leu Ile Cys Tyr His Ser Arg Gly Gly Pro Pro
115 120 125

<210> 44

<211> 177

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> VARIANT

<222> (63)..(68)

<223> The Xaa(s) at positions 63-68 can be any amino
acid.

<400> 44

Met Arg Pro Leu Ala Gly Gly Glu His Thr Met Ala Ser Pro Leu Thr
1 5 10 15

Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu Gly Glu Ser Ile Ile Leu
20 25 30

Gly Ser Gly Gly Gly Cys Ala Ala Leu Glu Ser Glu Val Ser Ala Leu
35 40 45

Glu Ser Glu Val Ala Ser Leu Glu Ser Glu Val Ala Ala Leu Xaa Xaa
50 55 60

Xaa Xaa Xaa Xaa Leu Ala Ala Val Lys Ser Lys Leu Ser Ala Val Lys
65 70 75 80

Ser Lys Leu Ala Ser Val Lys Ser Lys Leu Ala Ala Cys Gly Gly Ser
85 90 95

Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
100 105 110

Gly Ser Gly Ser Gly Gly Ser Gly Gly Gly Pro Gln Arg Pro Glu Asp
115 120 125

Cys Arg Pro Arg Gly Ser Val Lys Gly Thr Gly Leu Asp Phe Ala Cys
130 135 140

Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Ile Cys Val Ala Leu Leu
145 150 155 160

Leu Ser Leu Ile Ile Thr Leu Ile Cys Tyr His Ser Arg Gly Gly Pro
165 170 175

Pro

<210> 45

<211> 47

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> VARIANT

<222> (38)..(43)

<223> The Xaa(s) at positions 38-43 can be any amino acid.

<400> 45

Met Arg Pro Leu Ala Gly Gly Glu His Arg Met Ala Ser Pro Leu Thr

1 5 10 15
 Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu Gly Glu Ser Ile Ile Leu
 20 25 30
 Gly Ser Gly Gly Gly Xaa Xaa Xaa Xaa Xaa Xaa Gly Gly Pro Pro
 35 40 45

<210> 46
 <211> 95
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic

<220>
 <221> VARIANT
 <222> (62)..(67)
 <223> The Xaa(s) at positions 62-67 can be any amino acid.

<400> 46
 Met Arg Pro Leu Ala Gly Gly Glu His Thr Met Ala Ser Pro Leu Thr
 1 5 10 15
 Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu Gly Glu Ser Ile Ile Leu
 20 25 30
 Gly Ser Gly Gly Gly Ala Ala Leu Glu Ser Glu Val Ser Ala Leu Glu
 35 40 45
 Ser Glu Val Ala Ser Leu Glu Ser Glu Val Ala Ala Leu Xaa Xaa Xaa
 50 55 60
 Xaa Xaa Xaa Leu Ala Ala Val Lys Ser Lys Leu Ser Ala Val Lys Ser
 65 70 75 80
 Lys Leu Ala Ser Val Lys Ser Lys Leu Ala Ala Cys Gly Pro Pro
 85 90 95

<210> 47
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> VARIANT

<222> (1)..(9)

<223> The Xaa(s) at positions 1-3, 6, 8, 9 can be any amino acid.

<400> 47

Xaa Xaa Xaa Pro Pro Xaa Pro Xaa Xaa

1

5

<210> 48

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> misc_feature

<222> (7)..(20)

<223> The n(s) at positions 7,8,10,11,13,14,16,17,19,20 can be any nucleic acid.

<400> 48

atgggcnnkn nknnknnknn kagacctctg cctccasbkg ggsbksbkgg aggccacact 60
taa 63

<210> 49

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> VARIANT

<222> (3)..(16)

<223> The Xaa(s) at postions 3-7, 13,15,16 can be any amino acid.

<400> 49

Met Gly Xaa Xaa Xaa Xaa Xaa Arg Pro Leu Pro Pro Xaa Pro Xaa Xaa

1

5

10

15

Gly Gly Pro Pro
20

<210> 50

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>

<221> VARIANT

<222> (2) .. (11)

<223> The Xaa(s) at postions 2-11 can be any amino acid.

<400> 50

Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys
1 5 10

<210> 51

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: epitope tag
sequence.

<400> 51

Met Gly Gly Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Ser Leu
1 5 10 15

Glx

<210> 52

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PKCa
translocation inhibitor sequence.

<400> 52

Gly Lys Gln Lys Thr Lys Thr Ile Lys Gly Pro Pro
1 5 10

<210> 53

<211> 92

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>

<221> misc_feature

<222> (28)..(56)

<223> The n(s) at postions

28,29,31,32,34,35,37,38,40,41,43,44,46,47,49,50,52
,53,55,56 can be any nucleic acid.

<400> 53

gcttagcaag atctctacgg tggaccknnk nnknnknnkn nknnknnkn knnknncccc 60
actcccatgg tcctacgtac caccacactg gg 92

<210> 54

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 54

gcttagcaag atctgtgtgt cagttagggt gtgg 34

<210> 55

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>
<221> misc_feature
<222> (23)..(24)
<223> The n(s) at positions 23-24 can be any nucleic acid.

<400> 55
ctggagaacc aggaccatgg gcnnkgggcc cccttaaacc attaaat

47

<210> 56
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: random sequence.

<220>
<221> misc_feature
<222> (23)..(48)
<223> The n(s) at positions
23,24,26,27,29,30,38,39,44,45,47,48 can be any
nucleic acid.

<400> 56
ctggagaacc aggaccatgg gcnnknnknn kccctcccnk cctnnknnkg ggccccctta 60
aaccattaaa t 71

<210> 57
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 57
tcatgcatcc aatttaatgg tttaag

26

<210> 58
<211> 4950
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: retroviral vector with presentation construct sequence.

<400> 58

tgaagacccc cacctgtagg tttggcaagc tagcttaagt aacgccattt tgcaaggcat 60
ggaaaataca taactgagaa tagagaagtt cagatcaagg ttaggaacag agagacagca 120
gaatatgggc caaacaggat atctgtggta agcagttcct gccccggctc agggccaaga 180
acagatggtc cccagatgcg gtccccccct cagcagtttc tagagaacca tcagatgttt 240
ccaggggtgcc ccaaggacct gaaaatgacc ctgtgcctta tttgaactaa ccaatcagtt 300
cgcttctcgc ttctgttcgc gcgcttctgc tccccgagct caataaaaaga gccacaacc 360
cctcactcgg cgcgccagtc ctccgataga ctgcgtcgcc cgggtacccg tattcccaat 420
aaagcctctt gctgtttgca tccgaatcgt ggactcgtg atccttgga gggctcctc 480
agattgattg actgccacc tcgggggtct ttcatttga ggttccaccg agatttggag 540
accctgcct agggaccacc gacccccccg cggggaggta agctggccag cggctgtttc 600
ctgtctgtct ctgtctttgt gcgtgtttgt gccggcatct aatgtttgcg cctgcgtctg 660
tactagttag ctaactagct ctgtatctgg cggaccctg gtggaactga cgagtctga 720
acaccggcc gcaaccctgg gagacgtccc agggactttg ggggcccgtt ttgtggcccg 780
acctgaggaa gggagtcgat gtggaatccg acccctcag gatatgtggt tctggtagga 840
gacgagaacc taaaacagtt cccgcctcgc tctgaatttt tgctttcggg ttggaaccga 900
agccgcgcgt cttgtctgct gcagcgtgc agcatcgttc tgtgttctct ctgtctgact 960
gtgtttctgt atttgtctga aaattagggc cagactgtta ccactccctt aagtttgacc 1020
ttaggtcact ggaaagatgt cgagcggatc gctcacaacc agtcggtaga tgtcaagaag 1080
agacgttggg ttaccttctg ctctgcagaa tggccaacct ttaacgtcgg atggccgcga 1140
gacggcacct ttaaccgaga cctcatcacc caggttaaga tcaaggctct ttcacctggc 1200
ccgcatggac acccagacca ggtcccctac atcgtgacct gggaagcctt ggcttttgac 1260
ccccctccct ggggtcaagcc ctttgtacac cctaagctc cgcctcctct tccctcatcc 1320
gccccgtctc tcccccttga acctcctcgt tcgaccccg ctcgatcctc cctttatcca 1380
gccctcactc cttctctagg cgcgggaatt ccaggaccat gggcgggccc ccttaaacca 1440
ttaaattggt aaaataaagg atccgtcgac ctgcagccaa gcttatcgat aaaataaaag 1500
attttattta gtctccagaa aaagggggga atgaaagacc ccacctgtag gtttggcaag 1560
ctagcttaag taacgccatt ttgcaaggca tggaaaatac ataactgaga atagagaagt 1620
tcagatcaag gtttaggaaca gagagacagc agaatatggg ccaaacagga tatctgtggt 1680
aagcagttcc tgccccggct cagggccaag aacagatggt cccagatgc ggtcccggcc 1740
tcagcagttt ctagagaacc atcagatggt tccaggggtc cccaaggacc tgaaaatgac 1800
cctgtgcctt atttgaacta accaatcagt tcgcttctcg cttctgttcg cgcgcttctg 1860
ctccccgagc tcaataaaaag agcccacaac cctcactcg gcgcgccagt cctccgatag 1920
actgcgtcgc cgggtaccc gtgtatccaa taaacctct tgcagttgca tccgacttgt 1980
ggctcgtcgt ttccttggga gggctcctc tgagtgattg actaccgctc agcgggggtc 2040
tttcatctgt aatcatggtc atagctgttt cctgtgtgaa attgttatcc gctcacaatt 2100
ccacacaaca tacgagccgg aagcataaag tgtaaagcct ggggtgccta atgagtgagc 2160
taactcatat taattgcgtt gcgtcactg cccgctttcc agtcgggaaa cctgtcgtgc 2220
cagctgcatt aatgaatcgg ccaacgcgcg gggagaggcg gtttgcgtat tgggcgctct 2280
tcgccttctc cgtcactga ctgcgtgcgc tcggctcgtt ggctgcggcg agcggtatca 2340
gctcactcaa aggcggtaat acggttatcc acagaatcag gggataacgc aggaagaac 2400
atgtgagcaa aaggccagca aaaggccagg aaccgtaaaa aggcgcggtt gctggcgttt 2460
ttccatagga tccgcccccc tgacgagcat cacaaaaatc gacgctcaag tcagaggtgg 2520
cgaaacccga caggactata aagataaccg gcgtttcccc ctggaagctc cctcgtgcgc 2580
tctcctgttc cgacctgcc gcttaccgga tacctgtccg cctttctccc ttcggaagc 2640
gtggcgcttt ctcatagctc acgctgtagg tatctcagtt cgggtgtagt cgttcgctcc 2700
aagctgggct gtgtgacga acccccgtt cagcccagc gctgcgctt atccggtaac 2760

tatcgtcttg	agccaaccc	ggtaagacac	gacttatcgc	cactggcagc	agccactggt	2820
aacaggatta	gcagagcgag	gtatgtaggc	ggtgctacag	agttcttgaa	gtgggtggcct	2880
aactacggct	acactagaag	gacagtattt	ggtatctgcg	ctctgctgaa	gccagttacc	2940
ttcggaaaaa	gagttggtag	ctcttgatcc	ggcaaacaaa	ccaccgctgg	tagcgggtggt	3000
ttttttgttt	gcaagcagca	gattacgcgc	agaaaaaaag	gatctcaaga	agatcctttg	3060
atcttttcta	cggggtctga	cgctcagtg	aacgaaaact	cacgttaagg	gattttggtc	3120
atgagattat	caaaaaggat	cttcacctag	atccttttaa	attaaaaatg	aagttttaaa	3180
tcaatctaaa	gtatatatga	gtaaacttgg	tctgacagtt	accaatgctt	aatcagtgag	3240
gcacctatct	cagcgatctg	tctatttcgt	tcattccatag	ttgcctgact	ccccgtcgtg	3300
tagataacta	cgatacggga	gggcttacca	tctggcccca	gtgctgcaat	gataccgcga	3360
gaccacgct	caccggctcc	agattttatca	gcaataaacc	agccagccgg	aagggccgag	3420
cgcagaagtg	gtcctgcaac	tttatccgcc	tccatccagt	ctattaattg	ttgccgggaa	3480
gctagagtaa	gtagtccgcc	agttaatagt	ttgcgcaacg	ttgttgccat	tgctacaggc	3540
atcgtgggtg	cacgctcgtc	gtttgggtatg	gcttcattca	gctccggttc	ccaacgatca	3600
aggcgagtta	catgatcccc	catggttgtc	aaaaaagcgg	ttagctcctt	cggtcctccg	3660
atcgttgta	gaagtaagtt	ggccgcagtg	ttatcactca	tggttatggc	agcactgcat	3720
aattctctta	ctgtcatgcc	atccgtaaga	tgcttttctg	tgactggtga	gtactcaacc	3780
aagtcattct	gagaatagtg	tatgcggcga	ccgagttgct	cttgcccggc	gtcaatacgg	3840
gataataccg	cgccacatag	cagaacttta	aaagtgtctca	tcattggaaa	acgttcttcg	3900
gggcgaaaaa	tctcaaggat	cttaccgctg	ttgagatcca	gttcgatgta	acccactcgt	3960
gcacccaact	gatcttcagc	atcttttact	ttcaccagcg	tttctgggtg	agcaaaaaaca	4020
ggaaggcaaa	atgccgcaaa	aaagggaata	agggcgacac	ggaaatgttg	aatactcata	4080
ctcttccttt	ttcaatatta	ttgaagcatt	tatcaggggt	attgtctcat	gagcggatac	4140
atatttgaat	gtatttagaa	aaataaacaa	ataggggttc	cgcgcacatt	tccccgaaaa	4200
gtgccacctg	acgtctaaga	aaccattatt	atcatgacat	taacctataa	aaataggcgt	4260
atcacgaggc	cctttcgtct	cgcgcgtttc	ggtgatgacg	gtgaaaacct	ctgacacatg	4320
cagctcccgg	agacggtcac	agcttgctctg	taagcggatg	ccgggagcag	acaagcccgt	4380
cagggcgctg	cagcgggtgt	tgccgggtgt	cggggctggc	ttactatgc	ggcatcagag	4440
cagattgtac	tgagagtgc	ccatatgcgg	tgtgaaatac	cgcacagatg	cgtaaggaga	4500
aaataaccgca	tcaggcgcca	ttcgccattc	aggctgcgca	actgttgga	agggcgatcg	4560
gtgcgggcct	cttcgctatt	acgccagctg	gcgaaagggg	gatgtgctgc	aaggcgatta	4620
agttgggtaa	cgccaggggt	ttcccagtc	cgacgttgta	aaacgacggc	cagtgccacg	4680
ctctccctta	tgcactcct	gcattaggaa	gcagcccagt	agtaggttga	ggccgttgag	4740
caccgcgcgc	gcaagggaatg	gtgcatgcaa	ggagatggcg	cccaacagtc	ccccggccac	4800
ggggcctgcc	accataccca	cgccgaaaca	agcgcctcatg	agcccgaagt	ggcgagcccc	4860
atcttcccca	tcggtgatgt	cggcgatata	ggcgccagca	accgcacctg	tggcgccggt	4920
gatgcgggcc	acgatgcgtc	cggcgtagag				4950

<210> 59

<211> 74

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 59

ctggagaacc aggaccatgg gcaagagaaa gggcgatgag gtggatggag tggggccccc 60

ttaaaccatt aaat

74

<210> 60

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: anti-apoptosis
sequence.

<400> 60

Met Gly Lys Arg Lys Gly Asp Glu Val Asp Gly Val Gly Pro Pro
1 5 10 15

<210> 61

<211> 74

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>

<221> misc_feature

<222> (35)..(48)

<223> The n(s) at positions 35,36,38,39,41,42,47,48 can
be any nucleic acid.

<400> 61

ctggagaacc aggaccatgg gcaagagaaa gggcnnknnk nnkgaknnkg tggggccccc 60
ttaaaccatt aaat 74

<210> 62

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: random
sequence.

<220>

<221> VARIANT

<222> (7)..(11)

<223> The Xaa(s) at postions 7-9,11 can be any amino

acid.

<220>

<221> VARIANT

<222> (10)

<223> The amino acid at position 10 can be Aspartic acid
or Glutamic acid.

<400> 62

Met	Gly	Lys	Arg	Lys	Gly	Xaa	Xaa	Xaa	Asp	Xaa	Val	Gly	Pro	Pro
1				5					10					15

<210> 63

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 63

tcacgcatcc aatttaatgg tttaag

26

<210> 64

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 64

gacccctccct ttatccag

18

<210> 65

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 65

ctacaggtgg ggtctttc

18

<210> 66

<211> 48

<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 66

atgggcaaga gaaagggcac ggcgtctgat gctgtggggc ccccttaa

48

<210> 67

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 67

Thr Ala Ser Asp Ala

1

5

<210> 68

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 68

atgggcaaga gaaagggcta tccttctgat gtgggtggggc ccccttaa

48

<210> 69

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 69

Tyr Pro Ser Asp Val

1

5

<210> 70

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 70

atgggcaaga gaaagggcac gccttcggat atggtggggc ccccttaa

48

<210> 71

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 71

Thr Pro Ser Asp Met

1 5

<210> 72

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 72

atgggcaaga gaaagggcac ggcttctgat cttgtggggc ccccttaa

48

<210> 73

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 73

Thr Ala Ser Asp Leu

1 5

<210> 74

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 74

atgggcaaga gaaagggctc tgatagggat attgtggggc ccccttaa

48

<210> 75

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 75

Ser Asp Arg Asp Ile

1

5

<210> 76

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 76

atgggcaaga gaaagggctg gttgctagag tttgtggggc ccccttaa

48

<210> 77

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 77

Trp Leu Leu Glu Phe

1

5

<210> 78

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 78

atggggcaaga gaaagggctg gttgatagag tttgtggggc ccccttaa

48

<210> 79

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 79

Trp Leu Ile Glu Phe

1

5

<210> 80

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> SITE

<222> (1)..(6)

<223> The Xaa(s) at positions 1-6 can be any amino acid.

<220>

<223> Description of Artificial Sequence: synthetic

<400> 80

Xaa Xaa Xaa Xaa Xaa Xaa

1

5

<210> 81

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 81

Ser Tyr Gln Asp Leu

1

5

<210> 82

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<220>

<221> VARIANT

<222> (3)..(12)

<223> The Xaa(s) at positions 3-12 can be any amino acid.

<400> 82

Met Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gly Gly Pro Pro

1

5

10

15

<210> 83

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 83

ctgacacaca ttccacag

18

<210> 84

<211> 122

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 84

ggatccagtg tgggtggtacg taggaatacc atgggatgtc cgtctgttgc taggccgcgg 60
ggtggtgggg gcccccccta gctaactaaa gatcccagtg tggtggtacg taggaattcg 120
cc 122

<210> 85
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 85
Met Gly Cys Pro Ser Val Ala Arg Pro Arg Gly Gly Gly Gly Pro Pro
1 5 10 15

<210> 86
<211> 112
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 86
ggatcccagt gtggtggtac gtaggaatac catgggattg tcttttgta ttygtctgca 60
gcacgtggtggg ggccccccct agctaactaa agatcccagt gtggtggtac gt 112

<210> 87
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 87
Met Gly Leu Ser Phe Val Ile Arg Leu Gln His Arg Gly Gly Pro Pro
1 5 10 15

<210> 88
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 88
ggatcccagt gtggtggtac gtaggagtag catgggacct ccgatttggt atactcattg 60

gagtcacggg gggccccccct agctaactaa agatcc

96

<210> 89

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 89

Met Gly Pro Pro Ile Trp Tyr Thr His Trp Ser His Gly Gly Pro Pro

1

5

10

15

<210> 90

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 90

ggatcccagt gtggtggtac gtaggagtag catggaagtc aggcgtttgt gaatactcgg 60
cataaggggg gcccccccta gctaactaaa gatcc 95

<210> 91

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 91

Met Glu Val Arg Arg Leu

1

5

<210> 92

<211> 126

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 92
cgggccgtat tcaacaaggg gctgaaggat gccagaagg taccattg tatgggatct 60
gatctggggc ctgggtgcac atgctttaca tgtgtttagt cgagggttaa aaacgtctag 120
gcccc 126

<210> 93
<211> 107
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 93
ggatcccagt gtggtggtac gtaggaatac catgggactt tagccgggcc cccctagct 60
aactaaagat cccagtgtgg tggtagtag gaattcgcca gcacagt 107

<210> 94
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 94
ggatcccagt gtggtggtac gtaggaatac atgggaactg ttatggcgat gtcggattag 60
gtcgaggggg gcccccccta gctaactaaa gatcc 95

<210> 95
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<400> 95
Met Gly Thr Val Met Ala Met Ser Asp
1 5

<210> 96
<211> 95
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 96

ggatccagtg tggtaggtacg taggaataacc atgggatgtc cgtctgttgc taggccgcgg 60
ggtggtgggg gcccccccta gctaactaaa gatcc 95

<210> 97

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 97

Met Gly Cys Pro Ser Val Ala Arg Pro Arg Gly Gly Gly Gly Pro Pro
1 5 10 15

<210> 98

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> (1)..(5)

<223> The Xaa(s) at postions 1-5 can be any amino acid.

<220>

<223> Description of Artificial Sequence: random
sequence.

<400> 98

Xaa Xaa Xaa Xaa Xaa
1 5

<210> 99

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: histidine tag
sequence.

<400> 99

His His His His His His

1

5

<210> 100

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> (1)..(4)

<223> The Xaa(s) at postions 1-3 and 5 can be any amino acid.

<220>

<221> VARIANT

<222> (4)

<223> The amino acid at postion 4 can be Aspartic acid or Glutamic acid.

<220>

<223> Description of Artificial Sequence: synthetic.

<400> 100

Xaa Xaa Xaa Asp Xaa

1

5

<210> 101

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

<400> 101

atgggcaaga gaaaaggctc ttaccaagat ctggtggggc ccccttaa

48

<210> 102

<211> 2

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker sequence.

<400> 102

Gly Ser

1